

EXAMINER INTERVIEW SUMMARY AND AMENDMENT AND RESPONSE UNDER 37 CFR § 1.116

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Serial No.: 10/807,214

Filed: March 22, 2004

Title: METHOD AND APPARATUS FOR INTEGRATED BATTERY-CAPACITOR DEVICES**REMARKS**

Applicant has carefully reviewed and considered the Final Office Action mailed November 30, 2005. Claims 32, 34, and 38-41 were allowed by the Examiner. Claims 21, 28, 29, 30, 33, and 37 are currently amended to more clearly define the invention as described below. Claim 60 is currently amended to add the previously missing period. No new matter is added. As a result, claims 21-41 and 55-62 are pending, and consideration of these claims is requested. Please charge any required fees to deposit account 502931.

Examiner Interview Summary

A telephonic Examiner Interview was held between Examiner Crepeau and Applicant's attorney Charles Lemaire (Reg. No. 36,198) on November 21, 2005. The independent claims were discussed relative to Thomas et al. and Meitav et al. No agreement was reached as a result of the Examiner Interview. However, as a result of the Examiner Interview and the subsequent Final Office Action, the claims 21, 28, 29, 30, 33, and 37 are currently amended to more clearly define the invention.

If an extension of time is required to enter this Summary, or for any other reason, please consider this a petition for extension of time for the requisite number of months and charge any additional fees or credit any overpayment to Deposit Account No. 502931.

Claim Objections

Regarding November 30, 2005, Office Action § 3: Claim 33 was objected to under 37 CFR 1.75 by the Examiner as being substantially duplicative of allowed claim 32. Applicant respectfully traverses. Claim 32 includes, "depositing a cathode-conductor of the battery on the insulating layer" (emphasis added). While claim 33 includes, "depositing a cathode-conductor of the battery on a face of the integrated circuit opposite the insulating layer" (emphasis added). The difference is significantly more than a slight difference in wording. An embodiment of claim 32 is shown in Figure 25A and described in paragraph [0276] in the original specification:

Figure 25A shows a perspective view of an embodiment 2500 of the present invention having an integrated circuit 2510 overlaid with a battery 2320. In some embodiments, integrated circuit 2510 includes a top

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insulator layer 2511 having a plurality of vias or openings 2512 to the active surface of the integrated circuit 2510 (the side with devices and connectors). Two of these vias are used as contacts 2514 and 2515 between integrated circuit 2510 and battery 2320. Battery 2320 is deposited as described for Figure 23. In some embodiments, battery 2320 is deposited on an integrated circuit wafer before integrated circuit 2510 is diced apart from the other integrated circuits. In some embodiments, battery 2320 is deposited onto integrated circuit 2510 after integrated circuit 2510 is diced apart from the other integrated circuits. Some embodiments further include a passivation layer over the top and sides of battery 2320 such as layer 2331 of Figure 23. (emphasis added)

An embodiment of claim 33 (which is different than claim 32) is shown (and fully enabled) in Figure 26A and described in paragraph [0289] in the original specification:

Figure 26A shows a perspective view of an device 2600 of the present invention having an integrated circuit 2510 overlaid on its back with a battery 2320. This embodiment is similar to that of Figure 25A, except that the battery 2320 is deposited on the back of IC 2510, and is wire-lead bonded to contact 2514 using wire 2614 from battery contact 2519 and to contact 2515 using wire 2615 from battery contact 2518. (emphasis added)

The resulting structure of the method of claim 32 and the resulting structure of the method of claim 33 are not duplicative. Accordingly, reconsideration and withdrawal of the objection with regard to claim 33 is respectfully requested.

Claim Rejections – 35 USC § 102

Regarding November 30, 2005, Office Action § 4: Claims 21-29, 31, 35, and 60 were rejected by the Examiner under 35 U.S.C. 102(b) as being anticipated by *Thomas et al.* (US Patent 5,849,426). Applicant respectfully traverses.

Thomas et al. describes a hybrid energy storage system where, “The battery cell or cells are disposed in a battery pack, as shown hereinbelow in FIG. 3.” (See *Thomas et al.* column 2, lines 35-36) In *Thomas et al.*, the battery is formed outside of the substrate, and the completed battery later disposed or placed in the housing.

Disposed in the housing base is the first energy source, 66. The first energy source 66 is one or more batteries of the type described hereinabove. As illustrated herein, the

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first energy source comprises five discrete cells 68, 70, 72, 74, 76, electrically connected in series and packaged in shrink wrap, in a manner well known in the art.
(See *Thomas et al.* column 4, lines 35-41)

The *Thomas et al.* figure 3 shows a completed battery 66 separate from housing 54 and from housing 52. *Thomas et al.* does not form its battery by depositing thin films on the housing.

In *Thomas et al.*, the second energy storage device, such as a capacitor, is also formed outside of/separately from the substrate, and disposed or placed in the housing.

In contrast, the present invention as described in claims currently amend independent claim 21, 28, 29, and previously presented dependent claims 22-27, 31, 35, and 60, deposit a series of thin-film layers on a substrate, once deposited, form a combined battery and device apparatus. *Thomas et al.* does not describe or suggest "successively depositing" a "plurality of thin-film layers" directly on the housing or substrate forming a battery and energy storage device. Accordingly, reconsideration and withdrawal of the rejection with regard to these claims is respectfully requested.

Claim Rejections – 35 USC § 103

Regarding November 30, 2005, Office Action § 5: Claims 36 and 55 were rejected by the Examiner under 35 U.S.C. 103(a) as being unpatentable over *Thomas et al.* Applicant respectfully traverses. Dependent claims 36 and 55 are dependent on independent claim 21, which is currently amended to more clearly distinguish from *Thomas et al.* Therefore, dependent claims 36 and 55 are not obvious to one of ordinary skill in the art at the time of the invention was made. Accordingly, reconsideration and withdrawal of the rejection with regard to these claims is respectfully requested.

Regarding November 30, 2005, Office Action § 6: Claims 21-23, 28-30, 35, 37, and 55-62 were rejected by the Examiner under 35 U.S.C. 103(a) as being unpatentable over *Meitav et al.* (US Patent 6,576,365). Applicant respectfully traverses.

The Examiner admits that, "The reference does not expressly teach that a battery and a capacitor are located next to each other either in a vertical or horizontal direction as recited in the instant claims."

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In one exemplary embodiment, there may be provided a multi-cell capacitor that comprises two elements of conductive polymer current collectors coated with a metallic film and adhered to a plastic perforated isolating frame. Such a combination forms a current collector assembly. Within the openings formed in each of the perforated isolating frames is present a high surface area carbon-based electrode material to form capacitive electrode plates. Where a current collector longitudinally electrically connects two isoplanar cells in series, the current collector is referred to as a common current collector. Where a current collector connects only a single cell to some external circuitry or contacts the end cell of a stack of cells, thereby connecting the stack to some external circuitry, the current collector is referred to as a terminal current collector. Such common and terminal current collectors are used externally to the stack or stacks of cells.
(See *Meitav et al.* column 3, line 64, through column 4, line 13)

Meitav et al. describes laminations of films and metallic layer adhesively attached. *Meitav et al.*, like *Thomas et al.*, does not describe or suggest depositing a series of thin-film layers directly on the housing or substrate forming a battery and energy storage device, but instead forms a battery in stacks. *Meitav et al.* describes using perforated isolating frames to support the structure, in contrast to the present invention using thin-film layers on a substrate.
(See *Meitav et al.* Abstract).

In contrast, the present invention as described in currently amended independent claim 21, 28, 29, 30, 37, and previously presented dependent claims 22, 35, and 55-62, deposit a series of thin-film layers on a substrate, once deposited, form a combined battery and device apparatus. *Thomas et al.* does not describe or suggest “successively depositing” a “plurality of thin-film layers” directly on the housing or substrate forming a battery and energy storage device.

Accordingly, reconsideration and withdrawal of the rejection with regard to these claims is respectfully requested.

Response to Arguments

Regarding November 30, 2005, Office Action’s § 7: The Examiner suggested that the claims be amended to recite the specific way(s) in which the layers are deposited, as this may be sufficient to patently distinguish over the references. Claims 21, 28, 29, 30, 33, and 37 have been currently amended as suggested to include “successively depositing” a “plurality of thin-film layers”. Accordingly, reconsideration and allowance of these claims is respectfully requested.

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Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (952-278-3501) to facilitate prosecution of this application.

If not otherwise provided herewith, please consider this a request for an extension of time for a sufficient number of months to enter these papers. If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 502931.

Respectfully submitted,

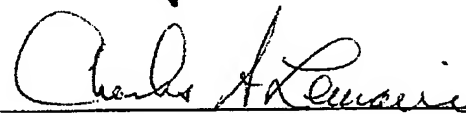
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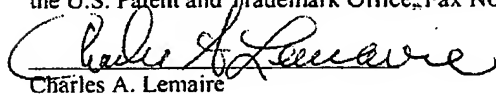
Date 20th January 2006

By



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CERTIFICATE OF TRANSMISSION: I hereby certify that this correspondence is being facsimile transmitted to the U.S. Patent and Trademark Office, Fax No. 1-571-273-8300 on this 20th day of January, 2006.


Charles A. Lemaire